Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for chronic neck pain.

BIBLIOGRAPHIC SOURCE(S)

Daffner RH, Dalinka MK, Alazraki N, Berquist TH, DeSmet AA, el-Khoury GY, Goergen TG, Keats TE, Manaster BJ, Newberg A, Pavlov H, Schweitzer ME, Haralson RH, McCabe JB. Chronic neck pain. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun;215(Suppl):345-56.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Chronic neck pain

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Neurology
Nuclear Medicine
Orthopedic Surgery
Radiology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for patients with chronic neck pain

TARGET POPULATION

Patients with chronic neck pain

INTERVENTIONS AND PRACTICES CONSIDERED

1. Radiography (anteroposterior, lateral, open mouth, oblique, flexion/extension)
2. Computed tomography
3. Magnetic resonance imaging - routine
4. Myelogram
    - Routine
    - With computed tomography
5. Radionuclide bone scan
6. Facet injection/arthrography

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in differential diagnosis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, primarily using the National Library of Medicine's MEDLINE database. The developer identified and collected the major applicable articles.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed to reach agreement in the formulation of the Appropriateness Criteria. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty (80) percent agreement is considered a consensus. If consensus cannot be reached by this method, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Chronic Neck Pain

Variant 1: Patient younger than 40. No history of trauma. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
• Anteroposterior, lateral, open mouth, oblique	No Consensus	At discretion of clinician.
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	

• With computed tomography	2	
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 2: Patient younger than 40. History of remote trauma. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
• Anteroposterior, lateral, open mouth, oblique	No Consensus	At discretion of clinician.
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	

Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 3: Patient older than 40. No history of trauma. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
• Anteroposterior, lateral, open mouth, oblique	No Consensus	At discretion of clinician.
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale		

1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate

Clinical Condition: Chronic Neck Pain

Variant 4: Patient older than 40. History of remote trauma. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
• Anteroposterior, lateral, open mouth, oblique	No Consensus	
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 5: Patients of any age. History of previous malignancy. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique	2	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
Computed tomography	2	
Magnetic resonance imaging-routine	No Consensus	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 6: Patients of any age. History of previous remote neck surgery. First study.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Radiography		
• Anteroposterior, lateral, open mouth	9	
• Anteroposterior, lateral, open mouth, oblique	2	
• Anteroposterior, lateral, open mouth, oblique, flexion/extension	2	
• Flexion/extension only	2	
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 7: Radiographs normal. No neurologic findings.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed tomography	2	
Magnetic resonance imaging-	2	

routine		
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 8: Radiographs normal. Neurologic signs or symptoms present.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Magnetic resonance imaging-routine	9	
Computed tomography	2	
Myelogram		
• Routine	2	
• With computed tomography	2	Indicated if patient cannot undergo magnetic resonance imaging.
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 9: Radiographs show spondylosis. No neurologic findings.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 10: Radiographs show spondylosis. Neurologic signs or symptoms present.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Magnetic resonance imaging-routine	9	
Computed tomography	2	
Myelogram		
• Routine	2	
• With computed tomography	2	Indicated if magnetic resonance imaging cannot be performed.
Radionuclide bone scan	2	
Facet injection/arthrography	2	

Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate

Clinical Condition: Chronic Neck Pain

Variant 11: Radiographs show old trauma. No neurologic findings.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed tomography	2	
Magnetic resonance imaging-routine	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Facet arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 12: Radiographs show old trauma. Neurologic signs or symptoms present.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Magnetic resonance imaging-routine	9	
Computed tomography	2	
Myelogram		

• Routine	2	
• With computed tomography	2	Indicated if magnetic resonance imaging cannot be performed.
Radionuclide bone scan	2	
Facet injection/arthrography	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Clinical Condition: Chronic Neck Pain

Variant 13: Radiographs show bone or disc margin destruction.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Magnetic resonance imaging-routine	9	
Computed tomography	2	
Myelogram		
• Routine	2	
• With computed tomography	2	
Radionuclide bone scan	2	
Appropriateness Criteria Scale 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Recommendations

Patients of any age with chronic neck pain without or with a history of remote trauma should initially undergo a 3-view (anteroposterior, lateral, open mouth) radiographic examination. Oblique radiographs may be performed at the discretion of the attending physician.

Patients with a history of previous malignancy should initially undergo a 3-view radiographic examination. Radionuclide bone scanning should not be the initial procedure of choice.

Patients with a history of neck surgery in the remote past should initially undergo a three view radiographic examination.

Patients with normal radiographs and no neurologic signs or symptoms need no further imaging.

Patients with normal radiographs and neurologic signs or symptoms should undergo magnetic resonance imaging. If there is a contraindication to the magnetic resonance examination such as a cardiac pacemaker or severe claustrophobia, computed tomography myelography, preferably using spiral technology and multiplanar reconstruction is recommended.

Patients with radiographic evidence of cervical spondylosis or of previous trauma without neurologic signs or symptoms need no further imaging.

Patients with radiographic evidence of cervical spondylosis or of previous trauma and neurologic signs or symptoms should undergo magnetic resonance imaging. If there is a contraindication to magnetic resonance, computed tomography myelography is recommended.

Patients with radiographic evidence of bone or of disc margin destruction should undergo magnetic resonance imaging. If an epidural abscess is suspected, the examination should be performed with intravenous contrast. Computed tomography is indicated only if magnetic resonance cannot be performed.

Although facet injection and arthrography as well as discography are useful in the lumbar region, they are believed to be of limited use in the cervical region.

Summary

There are no existing guidelines for the evaluation of the patient with chronic neck pain.

All investigators generally agree that plain radiographs should be the initial study performed for evaluating these patients. However, there is no consensus on exactly which views should be obtained for the initial study. We recommend a basic 3-view study, with oblique radiographs added at the discretion of the attending physician.

Magnetic resonance imaging should be performed on all patients who have chronic neck pain with neurologic signs, or symptoms, or both. If there is a contraindication to magnetic resonance, computed tomography myelography is recommended.

The use of additional imaging procedures should be determined by case manner, and the evaluation of patients with chronic neck pain should follow this "tailor-made" approach.

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate selection of radiologic exam procedures to evaluate patients with chronic neck pain.

POTENTIAL HARMS

None identified

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Daffner RH, Dalinka MK, Alazraki N, Berquist TH, DeSmet AA, el-Khoury GY, Goergen TG, Keats TE, Manaster BJ, Newberg A, Pavlov H, Schweitzer ME, Haralson RH, McCabe JB. Chronic neck pain. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun;215(Suppl):345-56.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1998

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria™.

GUIDELINE COMMITTEE

ACR Appropriateness Criteria™ Committee, Expert Panel on Musculoskeletal Imaging.

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Panel Members: Richard H. Daffner, MD; Murray K. Dalinka, MD; Naomi Alazraki, MD; Thomas H. Berquist, MD; Arthur A. DeSmet, MD; George Y. El-Khoury, MD; Thomas G. Goergen, MD; Theodore E. Keats, MD; B.J. Manaster,

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

The ACR Appropriateness Criteria™ are reviewed after five years, if not sooner, depending upon introduction of new and highly significant scientific evidence. The next review date for this topic is 2003.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American College of Radiology (ACR) Web site.

Print copies: Available from ACR, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on May 6, 2001. The information was verified by the guideline developer as of June 29, 2001.

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